CLAIMS:

1. A method for making a complementary comb filter pair, wherein the complementary comb filter pair comprises a first comb filter element having at least one stop band having a center position and a second comb filter element having at least one stop band having a center position, wherein the complementary comb filter pair is to be used to filter electromagnetic radiation having a wavelength range, comprising:

determining a constant multiplicitive factor M, according to the formula $M^{2n} = \lambda_{short}/\lambda_{long}$;

wherein n is the number of stop bands of each comb filter of the complementary comb filter pair, λ_{short} is the shortest wavelength of the wavelength range and λ_{long} is the longest wavelength of the wavelength range.

2. A product prepared in accordance with the method of claim 1.

3. The invention according to claim 1, wherein the first comb filter element has a first wavelength transmission profile and the second comb filter element has a second wavelength transmission profile, wherein the first wavelength transmission profile is complementary to the second wavelength transmission profile.

4. The invention according to claim 1, wherein the center position of the stop band of the first comb filter element having the longest wavelength is calculated according to the formula $\lambda_a = \lambda_{long}2M/(M+1)$, wherein λ_a is the center position of the stop band of the first comb filter element having the longest wavelength, λ_{long} is the longest wavelength of the wavelength range, and M is the constant multiplicitive factor.

5. The invention according to claim 4, wherein the center position of the stop band of the second comb filter element having the longest wavelength is calculated according to the formula $\lambda_b = \lambda_a M$, wherein λ_b is the center position of the stop band of the second comb filter element having the longest wavelength, λ_a is the center position of the stop band of the first comb filter element having the longest wavelength, and M is the constant multiplicitive factor.

6. The invention according to claim 1, wherein a masking agent is disposed on at least a portion of a surface of the second comb filter element.

7. The invention according to claim 1, wherein a dielectric coating is disposed on at least a portion of a surface of the first and second comb filter elements.

8. The invention according to claim 7, wherein the dielectric coating is disposed on the at least a portion of the surface of the first comb filter element to a first depth and the dielectric coating is disposed on the at least a portion of the surface of the second comb filter element to a second depth, wherein the difference in the deposition depth of the dielectric coating of the first comb filter element and the second filter element is calculated according to the formula 1-M, wherein M is the constant multiplicitive factor.

9. A method for making a complementary comb filter pair, wherein the complementary comb filter pair comprises a first comb filter element having at least one stop band having a center position and a second comb filter element having at least one stop band having a center position, wherein the complementary comb filter pair is to be used to filter electromagnetic radiation having a wavelength range, comprising:

determining a constant multiplicitive factor M, according to the formula $M^{2n} = \lambda_{short}/\lambda_{long}$;

wherein n is the number of stop bands of each comb filter of the complementary comb filter pair, λ_{short} is the shortest wavelength of the wavelength range and λ_{long} is the longest wavelength of the wavelength range; and

calculating the center position of the stop band of the first comb filter element having the longest wavelength according to the formula $\lambda_a = \lambda_{long}2M/(M+1)$;

wherein λ_a is the center position of the stop band of the first comb filter element having the longest wavelength, λ_{long} is the longest wavelength of the wavelength range, and M is the constant multiplicitive factor.

10. A product prepared in accordance with the method of claim 9.

11. The invention according to claim 9, wherein the first comb filter element has a first wavelength transmission profile and the second comb filter element has a second wavelength transmission profile, wherein the first wavelength transmission profile is complementary to the second wavelength transmission profile.

12. The invention according to claim 9, wherein the center position of the stop band of the second comb filter element having the longest wavelength is calculated according to the formula $\lambda_b = \lambda_a M$, wherein λ_b is the center position of the stop band of the second comb filter element having the longest wavelength, λ_a is the center position of the stop band of the first comb filter element having the longest wavelength, and M is the constant multiplicitive factor.

13. The invention according to claim 9, wherein a masking agent is disposed on at least a portion of a surface of the second comb filter element.

14. The invention according to claim 9, wherein a dielectric coating is disposed on at least a portion of a surface of the first and second comb filter elements.

15. The invention according to claim 14, wherein the dielectric coating is disposed on the at least a portion of the surface of the first comb filter element to a first depth and the dielectric coating is disposed on the at least a portion of the surface of the second comb filter element to a second depth, wherein the difference in the deposition depth of the dielectric coating of the first comb filter element and the second filter element is calculated according to the formula 1-M, wherein M is the constant multiplicitive factor.

16. A method for making a complementary comb filter pair, wherein the complementary comb filter pair comprises a first comb filter element having at least one stop band having a center position and a second comb filter element having at least one stop band having a center position, wherein the complementary comb filter pair is to be used to filter electromagnetic radiation having a wavelength range, comprising:

determining a constant multiplicitive factor M, according to the formula $M^{2n} = \lambda_{short}/\lambda_{long}$;

wherein n is the number of stop bands of each comb filter of the complementary comb filter pair, λ_{short} is the shortest wavelength of the wavelength range and λ_{long} is the longest wavelength of the wavelength range;

calculating the center position of the stop band of the first comb filter element having the longest wavelength according to the formula $\lambda_a = \lambda_{long}2M/(M+1)$;

wherein λ_a is the center position of the stop band of the first comb filter element

having the longest wavelength, λ_{long} is the longest wavelength of the wavelength range, and M is the constant multiplicitive factor; and

calculating the center position of the stop band of the second comb filter element having the longest wavelength according to the formula $\lambda_b = \lambda_a M$;

wherein λ_b is the center position of the stop band of the second comb filter element having the longest wavelength, λ_a is the center position of the stop band of the first comb filter element having the longest wavelength, and M is the constant multiplicitive factor.

17. A product prepared in accordance with the method of claim 16.

18. The invention according to claim 16, wherein the first comb filter element has a first wavelength transmission profile and the second comb filter element has a second wavelength transmission profile, wherein the first wavelength transmission profile is complementary to the second wavelength transmission profile.

19. The invention according to claim 16, wherein a masking agent is disposed on at least a portion of a surface of the second comb filter element.

20. The invention according to claim 16, wherein a dielectric coating is disposed on at least a portion of a surface of the first and second comb filter elements.

21. The invention according to claim 20, wherein the dielectric coating is disposed on the at least a portion of the surface of the first comb filter element to a first depth and the dielectric coating is disposed on the at least a portion of the surface of the second comb filter element to a second depth, wherein the difference in the deposition depth of the dielectric coating of the first comb filter element and the second filter element is calculated according to the formula 1-M, wherein M is the constant multiplicitive factor.